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ABSTRACT

The case study of a visually gifted 8-year-old child illustrates the problems that may be encountered in determining giftedness that is manifested largely through visual processes and products. The child's intelligence quotient was just below that required for admission to the gifted program in his school. Retesting with the complete number of performance subtests would have demonstrated his giftedness, in the opinion of several consultants, but the education supplied for gifted children in his school district would still not have met his unique needs. The characteristics of the child's giftedness in ability, personality traits, and creativity (advanced ability to manipulate materials, unusual ability to remember, deep levels of concentration, ability to see generalizations, large storehouse of information, varied interests, exceptional curiosity, resourcefulness, ability to learn quickly, leadership ability, to name a few) are explored. It is apparent that being identified as gifted does not end the problem for this child, whose giftedness lies outside the areas generally nurtured. There are seven illustrations. (SLD)

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Identifying the Visually Gifted: A Case Study

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by

Barbara W. Fredette and Adrienne Hunter

This is a tale about an eight year old, Matthew, who loved to draw and design and make things. He did most of this work when he was finished with his regular school work and it was not seen by his teachers as being anything other than "Matt's Art Stuff". When adults do not know what children's drawings mean they call it art and thus relegate it to what is a minor area of endeavor in most schools. In this way it is also separated from recognition as an essentially intellectual effort.

Underachievement begins in the early grades (Whitmore, 1980). Most teachers are able to detect those children who are achieving below the expected grade level. But what about gifted children? Gifted children may be capable of achieving at a much higher level than is called for by the content of their age/grade level identification but the teacher may merely observe that they are 'good students' and not place higher expectations on them--or even know how to provide more sophisticated but developmentally appropriate learning experiences.

For this reason many schools have developed special programs for gifted students. The pattern of access varies but the initial identification of the student, by a teacher, or by the parents must be supported by concrete evidence--a major element of this evidence is an IQ score. In Matthew's case it was 128 which is 2 points below the 130 which is a general requirement. The law reads that IQ is just one criteria and, where it is below 130, multiple criteria may be used to give the child access to the gifted program.

The identification of 'other criteria' which are acceptable can be a real problem for children such as Matthew who exhibit a major part of their intellectual giftedness through visual processes and products. In allowing for multiple criteria there is little attention given to the fact that most people who are making decisions about access to gifted programs--and this includes the classroom teacher--do not know how to identify gifted visual problem solving. Many teachers (and administrators of gifted programs) are incapable of recognizing the extent of intellectual (cognitive) giftedness in the visual products of their students. In Matthew's case the people who controlled the 'gates' were not, at the outset, willing to accept his drawings and constructions as evidence of intellectual giftedness.

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This was a problem for Matthew. But his mother, an art teacher, knew that her son was gifted and with a great deal of effort sought to break down the bureaucratic barriers. She requested a hearing. In preparation for the hearing she asked to review the test protocols for the WISC-III which had been administered to Matthew. A major factor in denying Matthew access to the gifted program was the score he received on this test.

When she reviewed the test protocol she discovered that the test had not been properly administered. The school psychologist had administered five (5) Verbal Subtests, but had only administered four (4) Performance Subtests: Picture Completion, Picture Arrangement, Coding, and Block Design. The fifth subtest, the Object Assembly, was prorated based upon the average of Matthew's verbal subtest scaled scores. Matthew had achieved the maximum score on the block design test and it was the opinion of several psychologists who were consulted about this matter that the score of 128 was inaccurate. They suggested that, considering Matthew's demonstrated visual and spatial ability, his IQ score should have been about 6 points higher had the full test been given.

If the test had been administered correctly Matthew would have been qualified for the gifted program but that would not necessarily have resulted in his receiving the type of education necessary for the development of his full potential as gifted in visual/spatial intellect. He probably would have received the same gifted education as the other children who are channeled along the verbal and/or mathematics route. Matthew is an 'A' student but he needs more than the usual accelerated and enrichment activities that are available in the special gifted program. His unique giftedness is observable in the many images he produces, images which reflect a unique spatially cognizant intellect. Images which, unfortunately, many adults, especially teachers, see only as Matt's "art thing".

Characteristics of Giftedness

There are a number of commonly accepted characteristics of gifted children (Golembiewski, 1991). These are identified as cognitive characteristics, personality characteristics and the characteristics of creative children. Examples of Matthew's work--done over a 2 month period of time--exemplify each of the characteristics. A major problem for Matthew was that the people who worked with him--his teachers--did not recognize these visual processes and products as evidence of his intellectual giftedness.

Note: The examples of Matthew's work which represent these characteristics are available as slides which represent a guided visual tour of Matthew's thought processes. However for the purposes of presenting the material in a paper form descriptions are substituted. A few visual examples are included in a much reduced size.

Advanced Ability to Manipulate Materials

Matthew created a game and a gameboard on which to play it. The board was made of construction paper with which Matt constructed a bridge with a trapdoor to fall through and a treasure which was hidden in a central circular form which could be raised and lowered. He worked out all of the necessary problems to make the paper do what he wished it to do. He has also spent a great deal of time making folded paper airplanes each of which is designed to do something different. Matt is an advanced-level Origami enthusiast.

Unusual Ability to Remember

A great deal of visual memory is called upon when a child creates a picture.The more details which are in the picture the more memory is being shown. Matt's pictures are filled with detail and with imaginative recombination of remembered aspects of things. It is hard for teachers, even art teachers, to recognize the depth of meanings representing the vast memory store that is being displayed in his visual products.

Deep Levels of Concentration

Building with Legos, Constructs, Blocks, Tinkertoys, and other manipulatives engrosses Matthew for hours at a time, daily. In fact, his mother tells the story about the time Matt misbehaved and had his "Lego Time" restricted. (He doesn't watch television enough to lose TV privileges.)

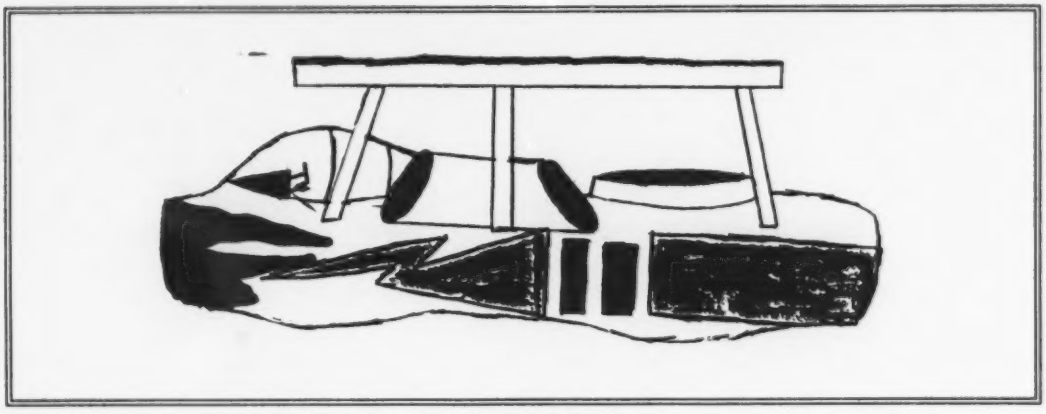
Sees Generalizations

As Matthew examines cause/effect relationships, explores options, and makes informed decisions, his creative problem solving skills generalize into many other aspects of his life. Following a drawing expedition to the Egyptian exhibit at the museum, Matthew's drawings depicted Horis with his feet and clothing re-designed, but still maintaining the distinctive Egyptian art style. Horis eventually finds himself drawn in the future (present) and as Matthew puts it, "He's back, and He's MAD! He's mad at what we are doing with the world!"

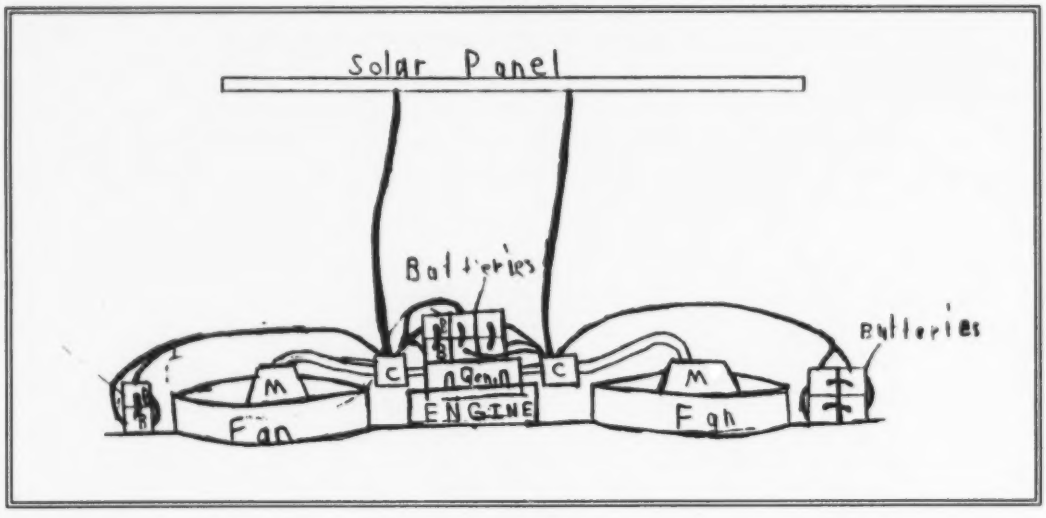
Large Storehouse of Information

Showing his intense concern with how and why things work, Matthew pulls from an exceptionally large specialized storehouse of information when he designs, evaluates, and modifies his ideas. He is especially skilled at designing paper airplanes where his knowledge of aerodynamics is evident as he is able to modify his designs to achieve desired performance. Each plane he creates is designed to do something special--and they work!!!

Another design effort he called The Solar Power Hover Car - "It gets you to work on time and doesn't pollute the air". Multiple sketches showed how this went from a design concept to a refined idea. The S.P.H.C. is powered by solar electricity, and when the sun isn't shining, it is run by natural gas. (See final design illustrated below.)



OUTSIDE



INSIDE

Varied Interests

Matthew's interests run the gamut from art, science, history, world cultures, to sports and poetry. He is a child for whom there are not enough hours in the day. Constantly aware of the world around him, Matthew follows current events with interest and often reflects his points of view in his artwork. He is as interested in the past and the future as he is in the present. His airplane drawings include pre-World War II bi-planes as well as futuristic space vehicles.

Exceptionally Curious

To satisfy his constantly inquiring mind, Matthew utilizes a variety of resources from observation, reading and asking questions to hands-on experimentation. In addition to the challenge of solving problems, Matthew enjoys creating challenges for others to solve via the mazes and board games he has designed. (See maze illustrations.)

Personality Characteristics

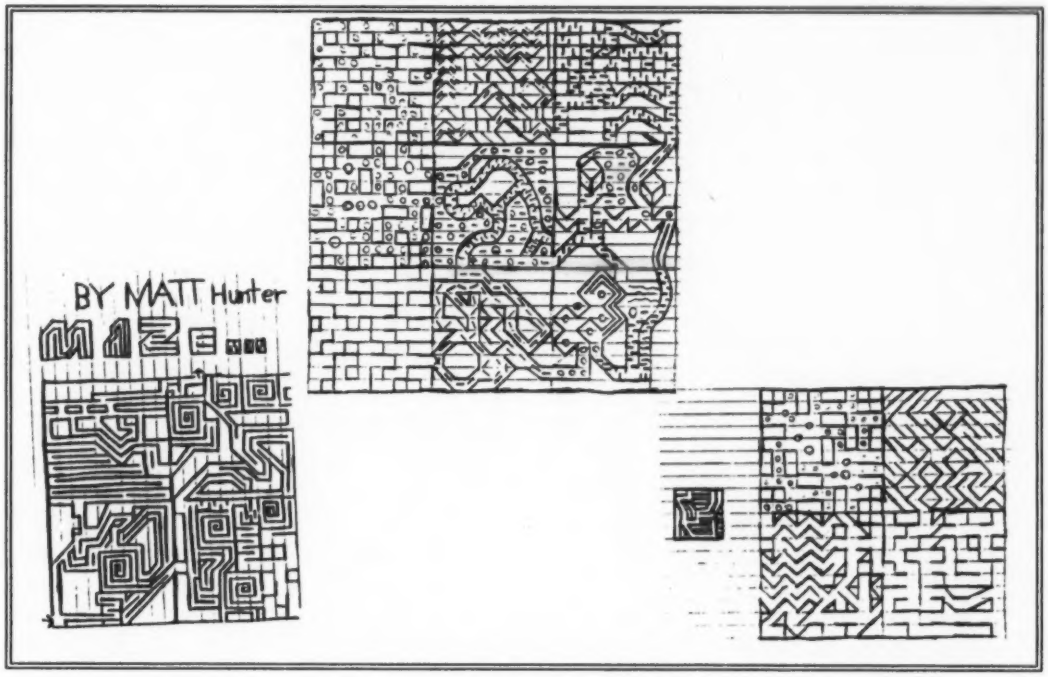
Sensitivity to Themselves, Others and Their Environment

When Matthew was only three years old, his mother was very ill following chemotherapy. Matthew greeted his mother on one of her worst days with, "It's a good day to get up Mommy, the sun is shining!" Matthew has a keen understanding of his own needs as well as those of the people around him. Of his own initiative, Matt donates his old toys to shelters when he feels his room is "too crowded" or he has out-grown a particular toy.

Matthew's concern for world peace and his environment can be seen in his artwork. A particularly poignant drawing "Toxo-Vipers" shows a battle with the bad guys that begins in a chemical plant and moves outside the plant amid toxic chemical eruptions.

Perfection

Striving for perfection, Matthew will rework an idea over and over until he has accomplished his goal. While he is unquestionably patient with and helpful to others less able, he is impatient with his own inability to do something which he feels he should be capable of doing faster, easier, or better.



MATTHEW'S MAZES

Matthew has a keen sense of proportion and spatial relationships. While working on a project with his class, Matt was very agitated over the fact that the people made as a result of directions by the teacher were larger than the buildings. When he called this fact to the attention of his teacher, he was told "it didn't matter". This was an insult to Matthew's sense of proportion, and his teacher lost credibility in Matt's eyes. His parents began to notice that Matthew would selectively "tune-out" his teacher.

Resourcefulness

Recognizing and exercising options comes naturally to Matthew. Never at a loss for ideas, Matthew will improvise and adapt as needed. When building with his blocks, if he doesn't have enough of a particular type, he will use a variety and build a multi-media unit. Recycling is a way of life for Matthew, and trash becomes treasure.

Ability to Learn Quickly

The third grade math class was learning perimeters, but Matthew was teaching himself three-dimensional design. In the span of only a month, Matthew's drawings illustrate the evolution of his thought process as he begins with a 3-dimensional doodle on graph paper, moves to design a 3-dimension house, uses his newfound knowledge in a more abstract "Escheresque" theme, and finally emerges with a sophisticated 3-dimensional mansion, without benefit of any instruction in perspective or three-dimensional design.

Leadership Ability

Despite the fact that Matthew is a rather quiet, understated child, he is a natural born leader. Other children look to Matthew for leadership. He utilizes good organizational skills without controlling. He also possesses a natural inclination towards teaching. As an advanced Origami folder, Matthew was invited to join the adult Origami Club to assist beginner-level adult members.

Creative Characteristics

Above Average Ability

Academically, Matthew is an A student, scoring in the top 1% on national standardized tests. Matthew frequently takes his work further than that which is expected or required. He sets his own goals in addition to those goals set for him.

Natural Drive to Explore Ideas

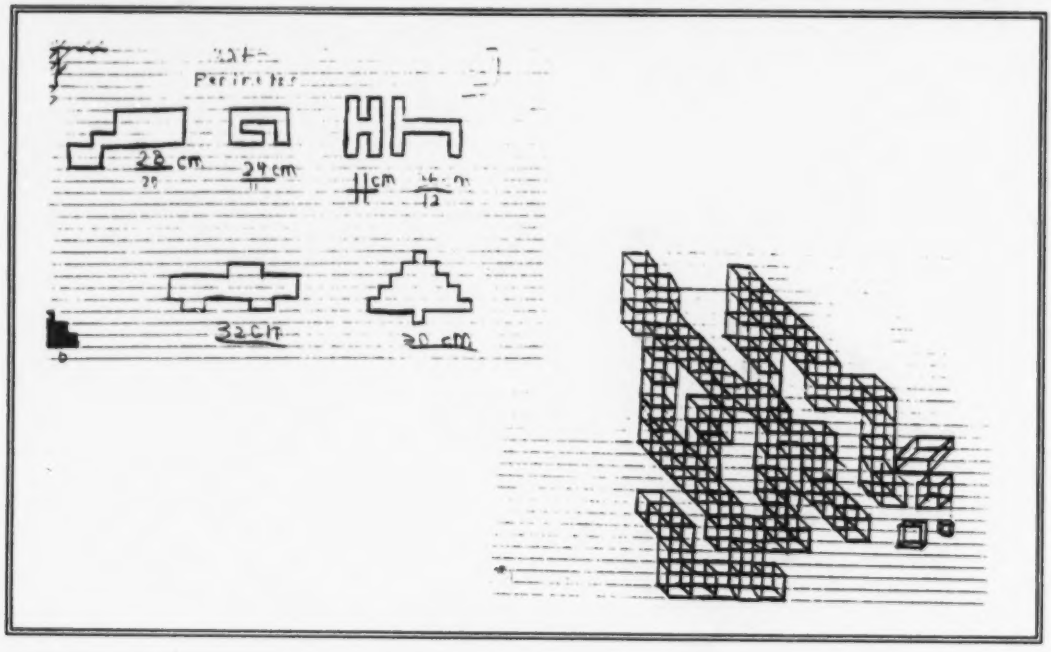
Matthew's natural drive to explore ideas is exemplified in "Sharks That Attack" which began as a standard enrichment assignment. The requirement to research a topic and write a report grew into a unique journey of the mind. From research to writing, Matthew moved on to shark illustrations. The illustrations of natural sharks that attack evolved into mechanical sharks that attack. Swimming with the natural shark, a mechanical shark or submarine shark is shown attacking a ship. On the reverse side of the drawing, the interior of the ship is shown filling up with water, compartment by

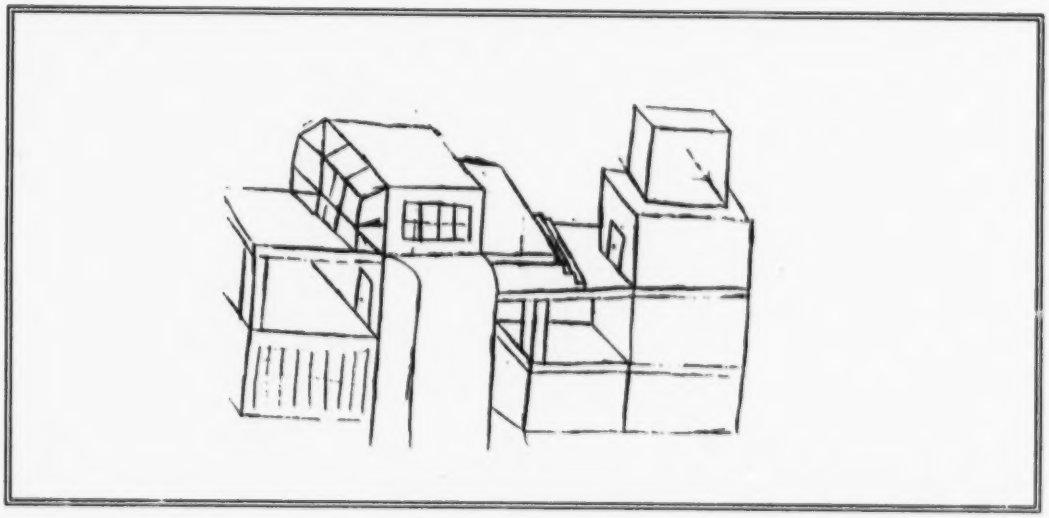
compartment, along with the damaging torpedo lodged in the ship.

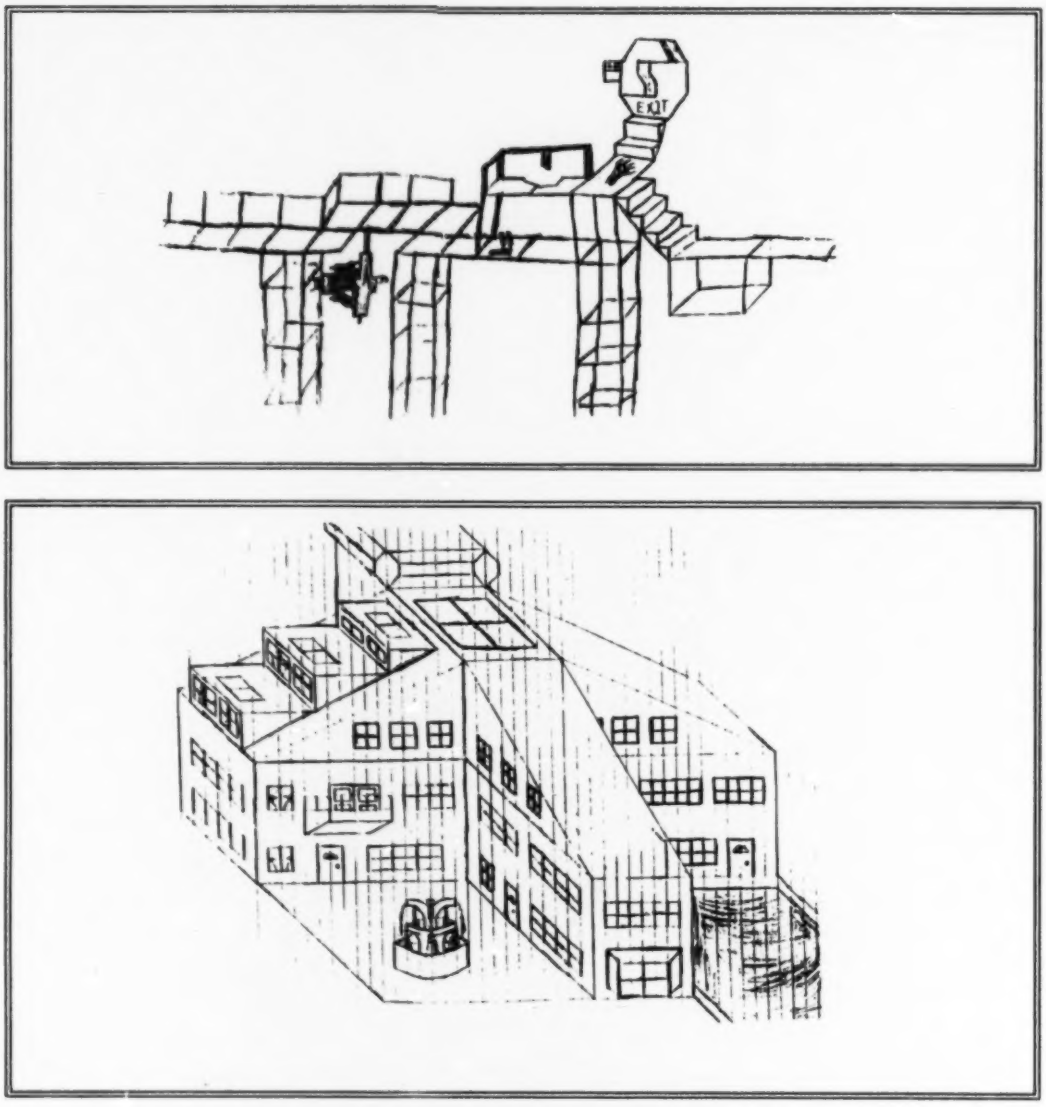
Ability to See Things as a Whole

As a very young child, Matthew was able not only to read schematic diagrams for assembly, but was also visually able to detect any errors in the instructions.

A particularly unique attribute of Matthew's drawings is his attention to not only the exterior view of his designs, but also the interior views and working mechanisms. Additionally, he offers us front views, back views and aerial views in his design series. He pays particular attention to details and spatial relationships in all of his drawings.







Drawing series representing self-taught perspective

Challenging the Conventional

Although he values friendship, Matthew is not concerned by what other people think about the worlds he imagines and creates on paper or in three dimensions. He is not swayed by peer pressure as he pursues his own interests. While at times this sets Matthew apart from his peers, he appears to receive respect as his talents are recognized.

Playfulness, High Energy and Restless in Mind and Body

Matthew has a very close relationship with his teenage sister. She serves as his mentor and his ideal. To her dismay, she also serves as the object of his devilment. From flying his helicopters into tangle range of her long hair, to blowing up her block-built structures, he knows just how far he can go to annoy her without retribution.

His mind a constant whirl of thought, Matthew never leaves home without his drawing tools. Even for short trips to the grocery store, Matthew is busy making sketches of ideas as he thinks of them. In this, as in all of the other behaviors just described, Matthew is a fine example of a young gifted student and one who is exceptionally gifted in visual/spatial intelligence.

This story about Matthew has a good ending--at least the first episode. Due to his Mother's extensive efforts which included obtaining letters of recommendation from persons who are knowledgeable about children's development in graphic expression, Matthew has been accepted into the gifted program. This may be good for other children as well because the criteria for admission to gifted education in Pittsburgh Public Schools has been expanded to include visual and spatial intellect (in addition to mathematical and verbal intellect evident in standardized tests).

An Individualized Educational Program has been written for Matthew. His IEP is to includes, in addition to accelerated and enrichment activities, the opportunity to develop his interests in architecture, engineering and design. He will be instructed in these areas by various contracted artists. Further:

> "He will be given opportunities to develop visual/spatial intelligence in content areas. His higher level thinking skills will be developed. He will have opportunities to express in visual symbols and images concepts learned in subject areas. He will have input in developing special projects that coordinate with the curriculum. He will also have additional opportunities for self expression through art in order to use his creative ability with time to develop specific skills within a variety of art media."

In order to achieve the IEP the curriculum must also be changed to meet his needs. Woolslayer Gifted Center does not have a resident art teacher, not even an itinerant one--practicing artists are occasionally contracted to visit. It is in the plan that Matthew will be paired with an architect (shadowing) but it is unclear how such a person will be identified and it is also unclear what the role of the person will be and whether or not he/she will be suitable for this important pairing.

In general it has become apparent that success in being identified as gifted doesn't end the problem for Matthew. The major problem still remains--a lack of ability on the part of adults working with Matthew to recognize this type of giftedness and to nurture

it within the context of the educational experiences they provide for him. Matthew enjoys going to the Woolslair Gifted Center one day a week but the other four days in his regular classes are falling short of the IEP. Matthew's one art class a week is scheduled on the day he goes out to the Gifted Center so Matthew doesn't have any art classes at all (there is no art teacher at the gifted center). His social studies teacher gave him pink construction paper and told him to "draw continents and peninsulas on it. His science teacher told him to draw himself wearing safety goggles. Matt was asked, "Were you supposed to design safety goggles?". Matt replied, "No, just draw the ones we wear."

In conclusion we must consider what changes must occur so that visually gifted students like Matthew are not denied access to an education which will enable them to become the much needed designers of our future. "This art thing" is how Matthew's giftedness was referred to by his content teachers. These content (Math, Social Studies, Science etc.) teachers are unaware of how to imaginatively and creatively utilize Matthew's visual designing talents.

We need to educate or reeducate teachers so that they can recognize in children's visual products the work of a high level intellect. We need more teachers who can use visual products as assessment tools and who recognize in the visual products of students evidence of high level thinking processes. We need teachers who can provide appropriate learning experiences for the visually gifted. They should realize that it is not enough to suggest that children illustrate a story they've written, if there's enough time. Perhaps the illustration should not be an 'afterthought', perhaps it should be the 'first thought'. Why not have children draw a story--then for people who can't read it--tape or write a narration to accompany the drawing.

What is needed is a re-thinking of the ways in which graphic ideation is encouraged (discouraged may be more appropriate). What is needed is a curriculum that appreciates the gifted visual thinker and uses developmentally appropriate activities that are challenging. An effective curriculum for the education of the visually gifted would not merely add visual activities as superficial add-ons. (As Elkind (1987) argued) children should not be made to fit into schools but schools need to fit children.

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Whitmore, J. (1980). *Giftedness, Conflict and Underachievement*. Boston: Allyn & Bacon.